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ABSTRACT

Kindergarten and first grade represent a time of rapid growth and learning for children. During these years, children acquire the reading knowledge and skills that prepare them for future schooling and life. Until recently, little national data have been available on young children's reading skills. The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), sponsored by the United States Department of Education's National Center for Education Statistics (NCES), strives to help fill this gap in knowledge. The study, which follows the academic progress of a nationally representative sample of children from kindergarten through fifth grade, provides information about children's reading achievement in early elementary school. This special analysis summarizes finding from the ECLS-K on children's reading skills through the first two years of school and the classroom experience of beginning readers. It explores some of the factors that relate to kindergartners' reading skills, such as the literacy environment in the home. In addition, the analysis focuses on differences in the instructional practices used to teach reading in kindergarten and the emphasis placed on various reading activities and skills. The special analysis concludes by examining the relationship between the type of kindergarten program (full-day or half-day) children attend and their reading skills and achievement. (PM)

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Reading—Young Children's Achievement and Classroom Experiences

Findings from The Condition of Education 2003

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Reading—Young Children's Achievement and Classroom Experiences

July 2003

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Preface

The Condition of Education summarizes important developments and trends in education using the latest available data. The report, which is required by law, is an indicator report intended for a general audience of readers who are interested in education. The indicators represent a consensus of professional judgment on the most significant national measures of the condition and progress of education for which accurate data are available. The 2003 print edition includes 44 indicators in six main areas: (1) enrollment trends and student characteristics at all levels of the education system from early childhood education to graduate and first-professional programs; (2) student achievement and the longer-term, enduring effects of education; (3) student effort and rates of progress through the educational system among different population groups; (4) the contexts of elementary and secondary education in terms of courses taken, teacher characteristics, and other factors; (5) the contexts of postsecondary education; and (6) societal support for learning, parental and community support for learning, and public and private financial support of education at all levels.

The 2003 edition also includes a special analysis that examines children's reading achievement and classroom experiences in kindergarten and 1st grade. To make the special analysis available to audiences interested in early childhood education, the special analysis is reprinted here as a separate volume.

Reading—Young Children's Achievement and Classroom Experiences

Introduction

Kindergarten and 1st grade represent a time of rapid growth and learning for children. During these years, children acquire the reading knowledge and skills that prepare them for future schooling and life. Until recently, little national data have been available on young children's reading skills. While the National Assessment of Educational Progress (NAEP) has regularly assessed the reading skills of U.S. 4th-graders since the early 1970s, few national studies have assessed the reading skills of children when they enter kindergarten and have documented the development of these skills through 5th grade.

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES), strives to help fill this gap in knowledge. The study, which follows the academic progress of a nationally representative sample of children from kindergarten through 5th grade, provides information about children's reading achievement in early elementary school. In particular, the ECLS–K assesses children's reading skills and collects detailed information about children's home literacy environment and the reading instruction they receive from their teachers and schools.[1]

This special analysis summarizes findings from the ECLS–K on children's reading skills throughout the first 2 years of school and the classroom experiences of beginning readers. It starts with a brief description of how children's reading skills are assessed in the study and then presents what this assess-

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ment tells us about the development of children's early reading skills across kindergarten and 1st grade. The next section explores some of the factors that relate to kindergartners' reading skills, such as the literacy environment in the home. The focus of the following section is on differences in the instructional practices used to teach reading in kindergarten and the emphasis that is placed on various reading activities and skills. Because kindergartners' school day can vary in length, information about these differences in classroom experiences are presented separately for full-day and half-day kindergarten programs. This special analysis concludes by examining the relationship between the type of kindergarten program children attend (full-day vs. half-day) and their early reading skills and achievement. Understanding the nature of this relationship is particularly important given the increase in the percentage of children who attend full-day programs (Walston and West forthcoming).

Measures of Reading Achievement in the ECLS–K

Measuring the reading skills and knowledge of young children was not easy. An assessment was needed that was appropriate for children ages 4–7 and that reflected what was being taught in kindergarten and 1st grade in 1998–2000 (when the ECLS–K assessments were being administered). To respond to these challenges, the developers of the study created an adaptive assessment that was administered individually to students and was untimed. As described below, the ECLS–K reading assessment covered a range of content areas and included items that measured children's various abilities, such as basic skills, vocabulary, and comprehension.

- Basic skills include recognizing the printed word and its component orthographic and phonological coding skills (e.g., knowledge of the alphabet and of the relationship of letters to sounds at the beginning and ending of words).
- Vocabulary includes knowing the meaning of single words that represent objects and groups of objects, actions, and qualities of space and time.
- Four types of reading comprehension skills include initial understanding (e.g., identifying the main point of a passage, understanding words in the context of simple passages); interpretation (e.g., linking information across parts of the text as well as focusing on specific information); personal reflection and re-

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sponse (e.g., connecting knowledge from the text with children's own personal background knowledge); and demonstration of a critical stance (considering text objectively—e.g., what events in a passage of text are plausible). Because most kindergartners are just beginning to read, the ECLS–K uses items that assess children's listening comprehension and their reading comprehension.

Absent from the ECLS–K direct reading framework is children's writing. It is not feasible to include a sampling of children's writings given the practical constraints associated with the cost of scoring their samples. The ECLS–K assessment did not include a direct measure of children's oral language.[2] Nonetheless, by assessing a variety of reading skills appropriate for both kindergartners and 1st-graders, the study provides powerful information at a single point in time (i.e., estimates upon entry to kindergarten) and over time (i.e., estimates of growth across kindergarten and 1st grade) (for more information, see Rock and Pollack 2002).

Reading Knowledge and Skills

The first 2 years of the ECLS–K followed a cohort of students from their entry into kindergarten in fall 1998 to their completion of 1st grade in spring 2000. Thus, the findings from this study address key questions about the reading knowledge and skills of these children when they began kindergarten, their reading gains across kindergarten and 1st grade, and the specific factors that are related to children's reading knowledge and skills.

What reading skills do children demonstrate when they enter kindergarten?

Children who entered kindergarten for the first time in fall 1998 brought certain reading skills into their kindergarten classrooms. About two-thirds of the kindergartners already knew the letters of the alphabet. About one-third knew the letter-sound relationship at the beginning of words, and about one-in-five knew the letter-sound relationship at the end of words (e.g., "cat" begins with the letter "c"; "dog" ends with the letter "g"). A small percentage of children who entered kindergarten could already read single words or words within the context of a sentence (figure 1).

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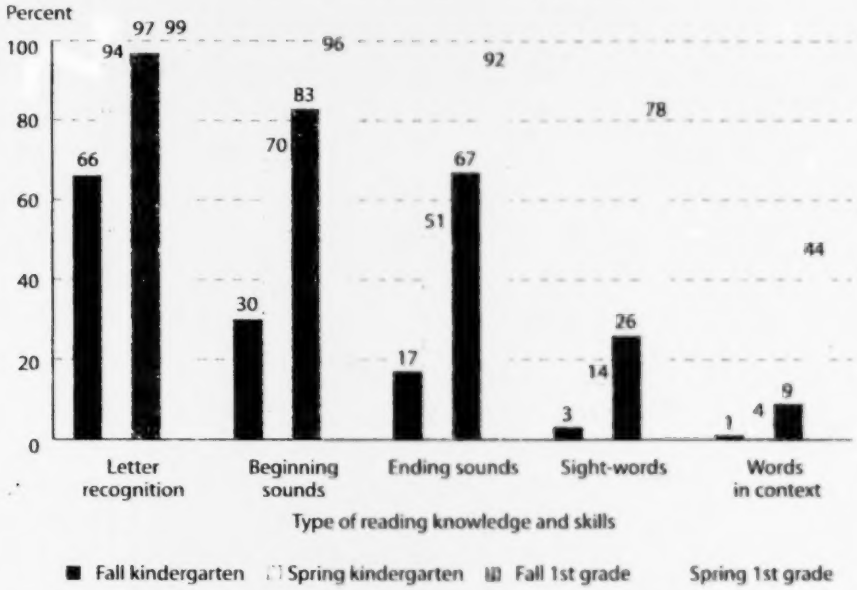
Figure 1. Percentage distribution of first-time kindergartners' reading scores, by type of reading knowledge and skills: Fall 1998, spring 1999, fall 1999, and spring 2000



NOTE: Based on those assessed in English for all rounds (excludes 19 percent of Asian/Pacific Islander and 31 percent of Hispanic children). Based on children who entered kindergarten for the first time in fall 1998.

SOURCE: U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), Base Year Public-Use Data File (NCES 2001–029) and First Grade Public-Use Data File (NCES 2002–134).

What reading skills and knowledge do children gain across kindergarten and 1st grade?

Children made considerable gains in reading during their first 2 years of school (Denton and West 2002). Across the kindergarten year, they learned the alphabet and letter-sound relationships at the beginning and end of words. By the end of kindergarten, nearly all of the children knew their letters, 70 percent understood letter-sound relationships at the beginning of words, and about one-half understood letter-sound relationships at the end of words (figure 1). When the children began 1st grade, about one-quarter could read words that are often used (sight words), and about 1-in-10 could read and understand words in context. By the end of the 1st grade, about three-quarters could read these often-used words, and 4-in-10 could read and understand words in context (figure 1).

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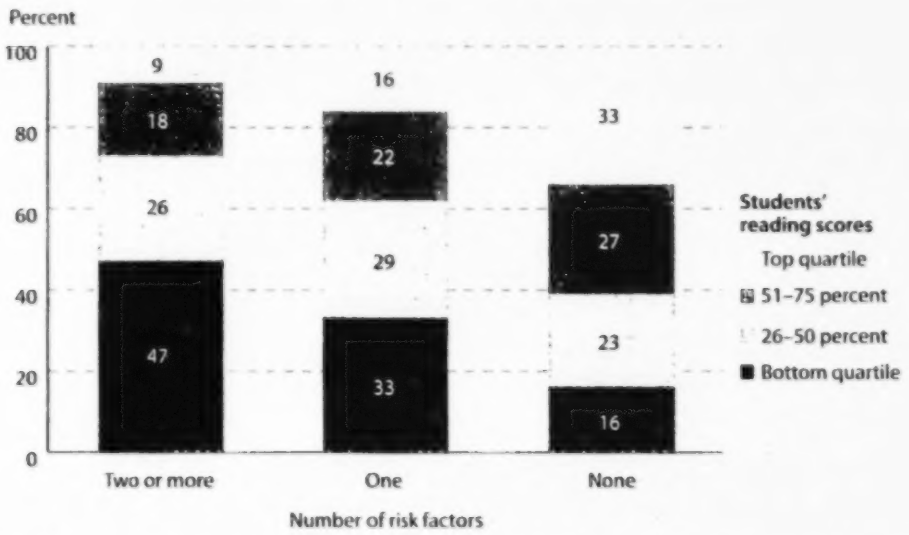
What are some of the factors that are related to children's reading skills?

Children who entered kindergarten in 1998 differed in the extent to which they demonstrated certain reading abilities—such as recognizing letters and understanding the letter-sound relationship at the beginning and end of words—by their background characteristics. For example, White children scored higher than Black and Hispanic children on these reading skills (West, Denton, and Germino Hausken 2000). In addition, children whose mothers had higher levels of education scored higher in these skills than those whose mothers had less education (West, Denton, and Germino Hausken 2000), as did children from nonpoor families than those from poor families (Denton and West 2002).[3] When some of these factors were considered along with other factors that are also associated with children being more at risk of school failure, children from families with multiple risk factors[4] scored lower in reading upon kindergarten entry than children with no risk factors, or even one factor (figure 2 and Zill and West 2000).

Figure 2. Percentage distribution of kindergartners at each quartile group of the overall skill distribution, by number of risk factors: Fall 1998



NOTE: Risk factors are mother's education is less than high school, single-parent family, receipt of welfare assistance, and primary home language other than English. Detail may not sum to totals because of rounding.

SOURCE: Zill, N., and West, J. (2001). *Findings From The Condition of Education 2000: Entering Kindergarten* (NCES 2001–035), figure 10. Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 Base Year Public Use Data File (NCES 2002–029).

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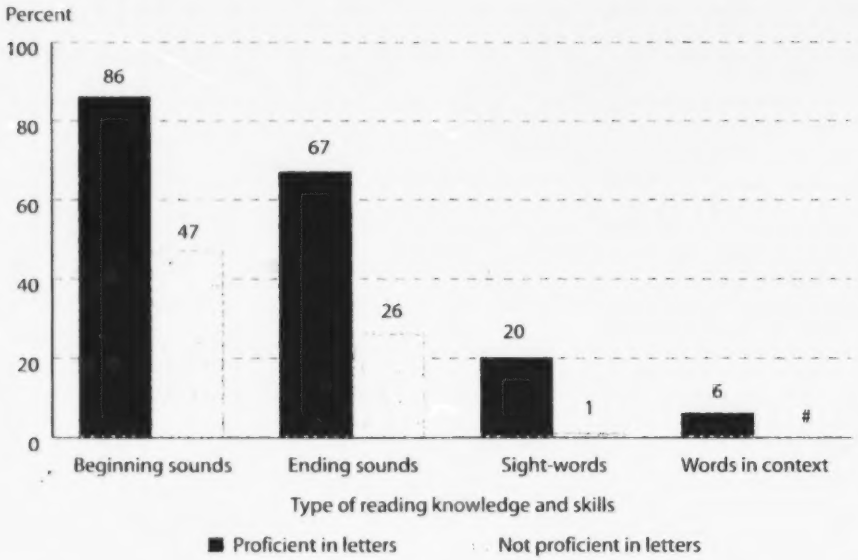
As in the beginning of kindergarten, children's reading skills across kindergarten and 1st grade differed by certain characteristics of the child and family. As might be expected, various groups of children showed growth in different areas. During the kindergarten year, as an illustration, children at-risk of school failure[5] made gains that helped close the gap between themselves and their more advantaged peers in terms of basic reading skills, such as recognizing letters; however, on more difficult skills, such as reading single words, the gap between these groups widened (i.e., recognizing sight-words) (West, Denton, and Reaney 2001). At the end of 1st grade, differences began to emerge between boys and girls in the extent to which they acquired certain reading skills. After 2 years of formal schooling, girls were more likely than boys to be able to read single words and to read and understand words in context (Denton and West 2002).

Other factors were related to children's reading skills and knowledge at the start of kindergarten and to their reading achievement at the end of kindergarten and 1st grade. At the beginning of kindergarten, children's reading skills and knowledge were related to their home literacy environment. Children from a "literacy-rich" home environment (i.e., those who are read to, sung to, and told stories to more frequently and those who have more children's books, records/audiotapes/CDs in the home) demonstrated higher reading knowledge and skills than other children. This relationship existed whether their families' income was above or below the federal poverty threshold (U.S. Department of Education 2003, *indicator 36*).

Children's performance in reading during kindergarten and 1st grade was also related to their home literacy resources upon entering kindergarten (Denton and West 2002). Paralleling the pattern for children upon kindergarten entry, children with rich literacy environments at home were more likely than other children to perform well in reading at the end of both kindergarten and 1st grade. In addition, children who had certain early literacy knowledge and skills (e.g., could recognize letters of the alphabet, recognize numbers and shapes, and understand the concept of the relative size of objects) when they entered kindergarten demonstrated higher reading proficiency in the spring of both kindergarten and 1st grade than children who did not have this knowledge and skills. Figure 3 shows the relationship between children's proficiency in recognizing letters at kindergarten entry and their specific reading knowledge and skills in the spring of kindergarten.

Figure 3. Percentage of children demonstrating specific reading knowledge and skills in the spring of kindergarten, by proficiency in recognizing letters at kindergarten entry: Spring 1999



#Rounds to zero.

SOURCE: Denton, K., and West, J. (2002). *Children's Reading and Mathematics Achievement in Kindergarten and First Grade* (NCES 2002-125), figure 5. Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base Year Public-Use Data File (NCES 2001–029) and First Grade Restricted-Use Data File (NCES 2002–134).

Similarly, children who frequently demonstrated positive approaches to learning when they entered kindergarten (e.g., persisted at tasks, paid attention, and were eager to learn) had higher reading skills than children who less frequently displayed such behavior. This pattern was found in the spring of both kindergarten and 1st grade (Denton and West 2002). Figure 4 shows the relationship between children's approaches to learning and their reading skills at the end of kindergarten.

Furthermore, children's health was related to their reading performance in the early years of school. Children who were in "very good" to "excellent" general health when they entered kindergarten had higher scores in reading in the spring of both kindergarten and 1st grade than those children who were less healthy.

As described above, children's reading achievement in kindergarten through the 1st grade is related to certain child and family characteristics, including their home literacy environment, early literacy skills, approaches to learn-

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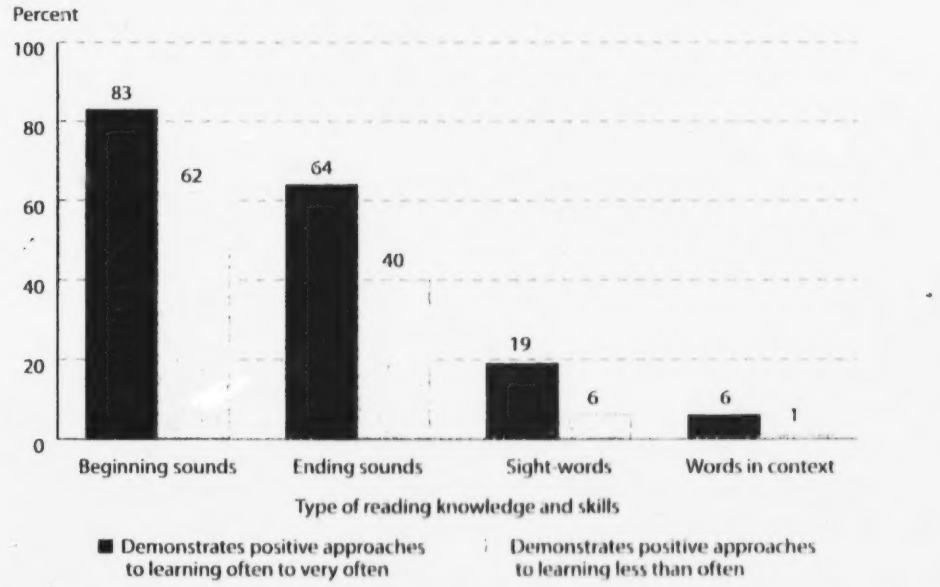
ing, and general health. These relationships are still present after controlling for children's poverty status and race/ethnicity (Denton and West 2002). The next section turns to a discussion of children's early instructional experiences in the classroom.

Figure 4. Percentage of children demonstrating specific reading knowledge and skills in the spring of kindergarten, by their approaches to learning at kindergarten entry: Spring 1999



SOURCE: Denton, K., and West, J. (2002). *Children's Reading and Mathematics Achievement in Kindergarten and First Grade* (NCES 2002–125), table 8. Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), Base Year Public-Use Data File (NCES 2001–029) and First Grade Restricted-Use Data File (NCES 2002–134).

Reading Experiences in the Kindergarten Classroom

The ECLS–K also provides much information about kindergarten classrooms and children's reading instructional experiences in the classroom based on the reports of their teachers. Results from the survey can be used to answer questions about the percentages of children who attend kindergarten for a full day or part of a day (half day), the instructional approaches and strategies used in kindergarten classrooms, the amount of attention given to certain reading activities and skills, and whether children's reading gains differ by the type of kindergarten program they attend. The findings are presented separately for full-day and half-day kindergartens.

What percentage of children attend full-day or half-day kindergarten?

Not every child who attends kindergarten goes to school for a "full day": in 1998–99, 56 percent of children attended a full-day kindergarten program, and 44 percent attended a half-day program. Whether children attended for a full day or a half day varied according to where they lived, their race/ethnicity, and poverty level. In public schools, for example, a higher percentage of children in the South attended full-day programs (83 percent) than children in the Northeast, Midwest, and West (41, 45, and 23 percent, respectively). Urban and rural children were more likely than suburban children to attend full-day programs (59 and 65 percent, respectively, vs. 45 percent). A higher percentage of Black children than White, Hispanic, and Asian children attended full-day programs (79 percent vs. 49, 46, and 40 percent, respectively). Poor children were more likely than nonpoor children to attend full-day programs (62 vs. 51 percent). Fifty-four percent of public school kindergartners and 70 percent of private school kindergartners attended a full-day program, compared with 46 percent and 30 percent of their counterparts who attended half-day programs (Walston and West forthcoming).

What instructional practices are used in kindergarten classrooms?

Kindergarten classrooms also differ in terms of the instructional practices that teachers use to help children learn to read.[6] Teachers' practices vary in terms of their instructional approaches—that is, the extent to which learning is teacher directed and involves the whole class; teacher directed and involves small group activities; or teacher guided and involves individual-child activities or child-selected activities. Teachers' practices can also vary according to the ways that children are grouped for instruction—whether children are organized into mixed-level groups, achievement groups, or peer-tutored groups.

In whole-class, teacher-directed activities, the teacher initiates and leads the majority of activities while the entire class is involved. Teachers can also lead and structure small-group and individual teacher-directed activities, which sometimes can occur concurrently with child-selected activities. Child-selected activities in kindergarten might include, for example, the use of learning centers in which the children can choose an activity (and perhaps the time spent on that activity). To account for the difference in the length of day between full- and half-day programs, in this analysis, the minutes that kindergarten teachers reported spending on these activities were converted into the percentage of class time.

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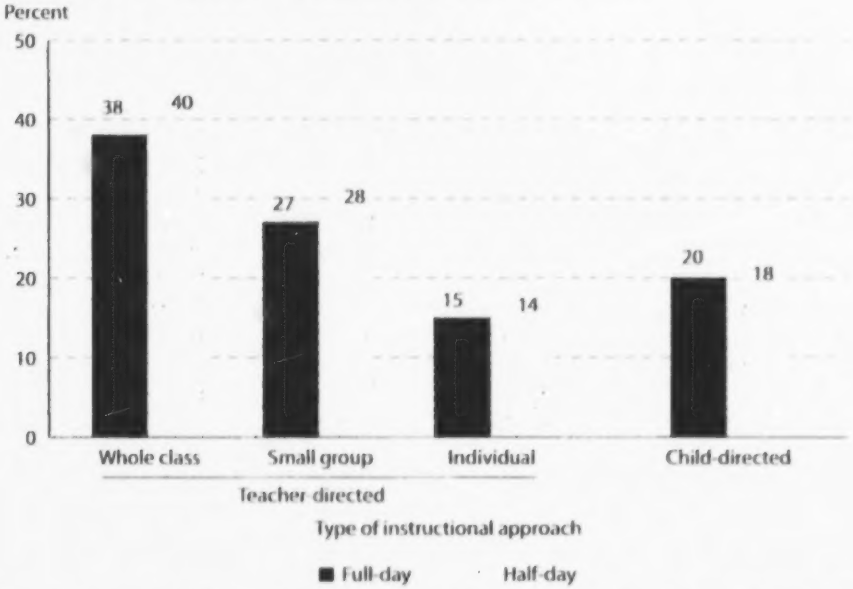
Based on teacher reports, full- and half-day classes spent more time in whole-class activities than in small group, individual, and child-directed activities. No differences were detected in the percentage of total class time spent on each type of teacher-directed activity by kindergarten program type (figure 5).

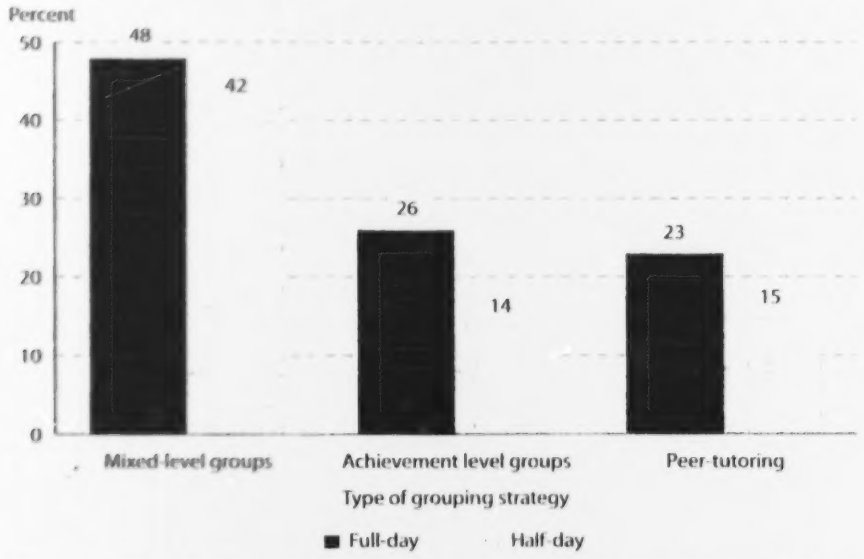
Figure 5. Average percentage of class time that public school kindergarten classes used various instructional approaches, by kindergarten program type: Spring 1999



SOURCE: Walston, J., and West, J. (forthcoming). *Full-Day and Half-Day Kindergarten in the United States* (NCES 2003–028). Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), Base Year Public-Use Data File (NCES 2001–029).

In some classrooms, teachers group children for instruction by their level of ability. As mentioned previously, teachers use various types of groups—mixed-level, reading achievement level, and peer-tutoring—to teach reading. Mixed-level groups consist of children of different ability levels working together. Reading achievement groups include children with similar abilities working together. Peer-tutoring allows proficient students to assist those who are less proficient with a learning activity. Ability grouping in kindergarten is related to the type of program. In spring 1999, full-day classes were more likely than half-day classes to use mixed-level groups (48 vs. 42 percent), reading achievement groups (26 vs. 14 percent), and peer-tutoring in reading (23 vs. 15 percent) on a daily basis (figure 6). Half-day classes used mixed-level groups more often than other types of groups (Walston and West forthcoming).

Figure 6. Percentage of public school kindergarten classes that used various grouping strategies daily for reading, by program type: Spring 1999



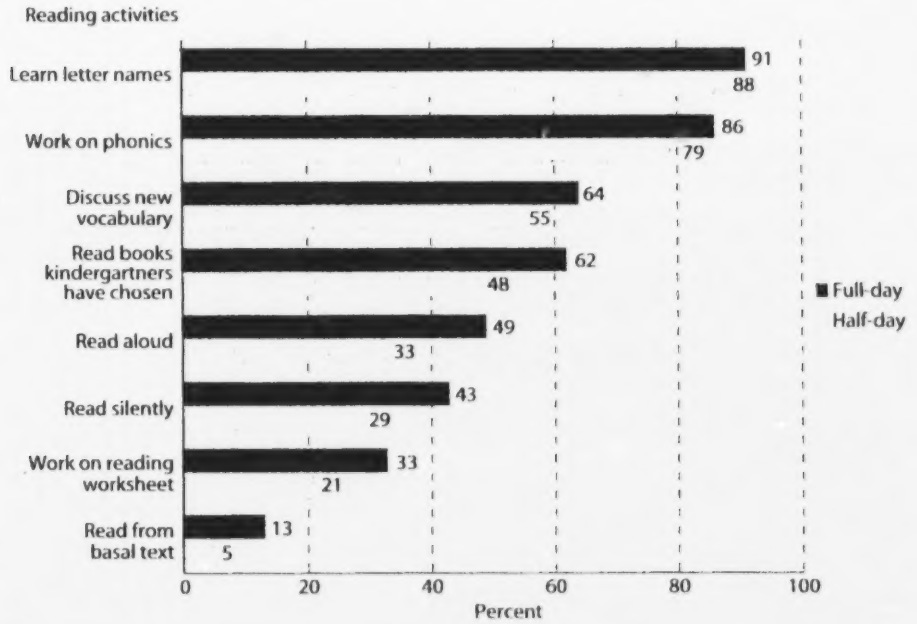
SOURCE: Walston, J., and West, J. (forthcoming). *Full-Day and Half-Day Kindergarten in the United States* (NCES 2003-028). Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base Year Public-Use Data File (NCES 2001-029).

How much time is spent in kindergarten classrooms on certain reading activities and skills?

Reading was taught in practically all kindergarten classrooms (97 percent) in 1998–99 (Walston and West forthcoming). In terms of specific reading activities (e.g., learning phonics, learning vocabulary, reading books), teachers reported that kindergartners were more likely to spend time each day learning the names of letters or working on phonics than doing reading worksheets or reading from basal texts. Some differences in the time spent on various reading activities were found by program type. For example, full-day classes were more likely than half-day classes to work on phonics on a daily basis, discuss new vocabulary, read books chosen by the children, read aloud, read silently, work on a reading worksheet, or read from a basal text (figure 7) (Walston and West forthcoming).

In addition to the preceding reading activities, classroom time was also spent on certain reading skills (e.g., matching letters to sounds, conventions of print, making predictions based on text).[7] Recognizing letters of the alphabet and matching letters to sounds were the two most common (i.e.,

Figure 7. Percentage of public school kindergarten classes that used certain reading activities daily, by program type: Spring 1999



SOURCE: Walston, J., and West, J. (forthcoming). *Full-Day and Half-Day Kindergarten in the United States* (NCES 2003–028). Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), Base Year Public-Use Data File (NCES 2001–029).

daily) reading skills reported taught in the kindergarten classroom regardless of program type (Walston and West forthcoming). Although there was some consistency in the skills most commonly taught, differences existed. Full-day classrooms were more likely than half-day classrooms to spend time every day on the following skills: letter recognition, letter-sound match, conventions of print, vocabulary, making predictions based on text, using context clues for comprehension, rhyming words, reading aloud, reading multi-syllable words, and alphabetizing (Walston and West forthcoming).

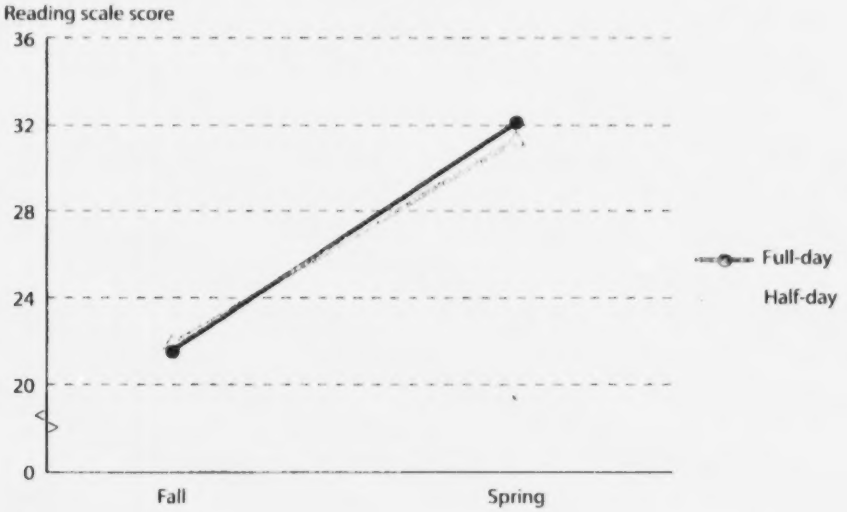
Do children's reading gains differ by the type of kindergarten program they attend?

The additional time that children who attend full-day kindergarten spend in school increases their exposure to a variety of instruction activities—learning phonics, reading books, reading from a basal text, and so forth. Findings from the ECLS–K suggest that public school children who attend full-day

classes make greater reading achievement gains during the kindergarten year than their counterparts who attend half-day classes (figure 8). On a reading scale that ranged from 0 to 72,[8] the average kindergartner in a full-day program gained 10.6 points over the school year. For children in half-day kindergarten programs, the average gain was 9.4 points.

These differences persist when other characteristics associated with kindergarten program type and/or children's academic success (e.g., race/ethnicity and poverty status), and classroom characteristics that might be related to kindergarten achievement gains (e.g., class size, presence of an instructional aide), are taken into account (Walston and West forthcoming).

Figure 8. Public school first-time kindergartners' mean reading scores and mean reading gain scores (unadjusted), by program type: Fall 1998 to Spring 1999



Type of program	Reading score		Gain score
	Fall 1998	Spring 1999	
Full-day kindergarten	21.6	32.1	10.6
Half-day kindergarten	21.9	31.3	9.4

NOTE: Estimates are based on public school first-time kindergarten children attending a regular kindergarten program (not a transitional or multi-grade class) who were assessed in English in both the fall and the spring. Only children with the same teacher in both the fall and spring were included in the analysis. Detail may not sum to totals because of rounding.

SOURCE: Walston, J., and West, J. (forthcoming). *Full-Day and Half-Day Kindergarten in the United States* (NCES 2003–028). Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K); Teacher Questionnaire and Child Assessments, Base Year Public Use Data File (NCES 2001–029).

Summary and Discussion

The ECLS–K provides some of the first nationally representative findings on young children's reading achievement and experiences during the first 6 years of elementary school. This special analysis has reported on the reading skills of children across kindergarten and 1st grade and the kindergarten classroom experiences of beginning readers. Findings from the analysis reveal:

- The differences in children's reading skills and knowledge usually seen in later grades appear to be present as children begin school and persist after 1 and 2 years of school. For example, White children outperform Black and Hispanic children in reading, and children from poor families tend to have lower reading assessment scores than children from nonpoor families.
- The resources children possess when they start kindergarten, such as their early literacy skills and the richness of their home literacy environment, are related to their reading proficiency across kindergarten and 1st grade.
- Attendance in a full-day or half-day kindergarten is related to where the children live, their race/ethnicity, and the poverty level of their families. Attendance in full-day kindergarten is highest in the South, in urban areas, and among Black and poor children.
- The reading instructional activities of full- and half-day public school kindergarten classes seem alike in some ways and different in others. Both types of classes spend about the same percentage of time on whole-class, small group, and individual activities. Both types of classes spend time each day on reading. The most commonly taught skills in both types of classes are recognizing the letters of the alphabet and matching letters to sounds. However, full-day classes are more likely to spend time each day on certain skills, including letter recognition, matching letters to sounds, the conventions of print, and vocabulary.
- Public school children who attend kindergarten for a full day make greater gains in reading over the kindergarten year than public school children who attend kindergarten for half of a day.

The findings in this special analysis scratch the surface of the potential of the ECLS–K to provide information about children's reading achievement and the school, classroom, and home factors that affect their chances of becoming good readers. More study is required to test the relationships between kindergarten and 1st-grade reading curricula and practices and children's reading gains during kindergarten and 1st grade. As data on 3rd- and 5th-

graders become available, it will be important to study the effects of children's beginning school resources and experiences on their reading achievement.

Notes

[1]In addition to assessing children's skills in reading, the ECLS–K assesses their skills in other cognitive areas. In kindergarten and 1st grade, the study collects information on their performance in the areas of reading, mathematics, and general knowledge. In 3rd and 5th grades, it assesses performance in reading, mathematics, and science. This special analysis focuses on reading.

[2]Teachers of the ECLS–K children were asked about children's writing and oral language skills, and oral language was included as a part of the study's direct assessment of language minority children.

[3]In this analysis, children and their families were classified as poor and not poor based on whether the total household income was below the federal poverty threshold or not. U.S. Census information for 1998 was used to establish the thresholds, where a household of four with a total household income of $16,655 was considered to be in poverty.

[4]These risk factors include mother's education is less than high school, single-parent family, receipt of welfare assistance, and primary home language other than English.

[5]These risk factors of school failure are defined above.

[6]The findings about children's reading achievement in the preceding sections reflect percentages of children. The findings in this section refer to percentages of classrooms. Eighty-five percent of kindergartners were in public school classrooms in fall 1998, and the majority of ECLS–K analyses of kindergarten classrooms to date are limited to public schools (Walston and West forthcoming).

[7]Information on how teachers spend their instructional time in reading was collected in the spring; however, this information is representative of instructional time across the entire 1998–99 school year. Similar information is available for mathematics.

[8]During the kindergarten year the reading assessment scores ranged from 0 to 72. In 1st, 3rd, and 5th grades, the range increases as items are added.

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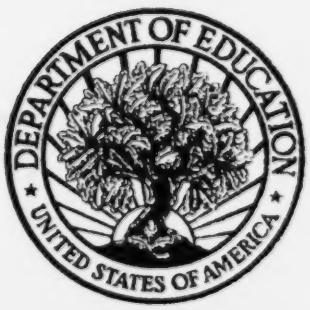

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